```
ISIS-II PL/M-86 V2.0 COMPILATION OF MODULE BREXPR
OBJECT MODULE PLACED IN BREXPR.OBJ
COMPILER INVOKED BY:  :F0: BREXPR.PLM DEBUG OPTIMIZE(2) DATE(FEBRUARY 2, 1982) XREF


                $title ('BRACKET EXPRESSION')
  1             brexpr:

                /*

                  modified  4/13/81  R. Silberstein

                */

                do;
                $include (:f1:macro.lit)
              =  $nolist
                $include (:f1:brexpr.x86)
              =  $nolist
                $include (:f1:ermod.ext)
              =  $nolist
                $include (:f1:exglob.ext)
              =  $nolist
```

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```
            $eject

            /* compute index expression within brackets */

 17   1     bracketexpr: proc(pt) byte public;
 18   2       dcl pt address,oper based pt operandstruc,
                 (firsttype,firstreg,lasttype,lastreg) byte,
                 baseregi lit '0',indexregi lit'1';

 19   2       regtyp: proc(pt1,pt2) byte;
 20   3         dcl (pt1,pt2) address,(typ based pt1,regi based pt2) byte;
 21   3         if (token.type=reg) and (token.descr=wrd) then$do
 23   4           typ=baseregi;
 24   4           regi=token.value;
 25   4           if (regi=rbp) or (regi=rbx) then return true;
 27   4           typ=indexregi;
 28   4           if (regi=rsi) or (regi=rdi) then return true;
               end$if;
 31   3         return false;
 32   3       end regtyp;

 33   2       setoperflags: proc (pt1,pt2);
 34   3         dcl (pt1,pt2) address,(typ based pt1,regi based pt2) byte;
 35   3         if typ=indexregi then$do
 37   4           oper.sflag=oper.sflag or iregbit;
 38   4           IF REGI = RDI THEN OPER.BASEINDEX = OPER.BASEINDEX OR INDEXREGBIT;
               else$do
 42   4           oper.sflag=oper.sflag or bregbit;
 43   4           IF REGI = RBP THEN OPER.BASEINDEX = OPER.BASEINDEX OR BASEREGBIT;
               end$if;
 46   3       end setoperflags;

 47   2       if not regtyp(.firsttype,.firstreg) then return false;
 49   2       call setoperflags(.firsttype,.firstreg);
 50   2       call scan;
 51   2       if specialtoken('+') then$do
 53   3         call scan;
 54   3         if not regtyp(.lasttype,.lastreg) then return false;
 56   3         if firsttype=lasttype then return false;
 58   3         call setoperflags(.lasttype,.lastreg);
 59   3         call scan;
 60   3       end$if;
 61   2       if not specialtoken(rightbracket) then return false;
 63   2       call scan;
 64   2       if (oper.sflag and segmbit) = 0 then$do
 66   3         if oper.stype=number then$do
 68   4           oper.baseindex=oper.baseindex or nooverridebit;
 69   4         end$if;
               end$if;
 71   2       oper.stype=variable;
 72   2       return true;
 73   2     end bracketexpr;

 74   1     end$module brexpr;
```

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CROSS-REFERENCE LISTING

DEFN	ADDR	SIZE	NAME, ATTRIBUTES, AND REFERENCES
16	0000H	1	ACCLEN . . . . . BYTE EXTERNAL(11)
16	0000H	80	ACCUM. . . . . BYTE ARRAY(80) EXTERNAL(12)
2			ADDR . . . . . LITERALLY 16 18
16	0008H	1	BASEINDEX. . . . . BYTE MEMBER(OPERANDS)
18	0008H	1	BASEINDEX. . . . . BYTE MEMBER(OPER) 39 44 68
7			BASEREGBIT . . . . LITERALLY 44
7			BASEREGCOUNT . . . LITERALLY
18			BASEREGI . . . . . LITERALLY 23
17	0000H	148	BRACKETEXPR. . . . PROCEDURE BYTE PUBLIC STACK=000AH
7			BREGBIT. . . . . LITERALLY 42
7			BREGCOUNT. . . . . LITERALLY
1	0000H		BREXPR . . . . . PROCEDURE STACK=0000H
4			BYT. . . . . LITERALLY
16	0000H	2	CIP. . . . . WORD EXTERNAL(3)
3			CODE. . . . . LITERALLY
2			CR . . . . . LITERALLY
16	0000H	1	CSEGSPEC . . . . . BYTE EXTERNAL(6)
16	0000H	1	CSEGTYPE . . . . . BYTE EXTERNAL(4)
16	0000H	2	CSEGVALUE. . . . . WORD EXTERNAL(5)
16	0000H	2	CURDSEG. . . . . WORD EXTERNAL(3)
2			DCL. . . . . LITERALLY
3			DELETEDSYMB. . . . LITERALLY
16	0001H	1	DESCR. . . . . BYTE MEMBER(TOKEN) 21
3			DOUBLEDEFINED. . . LITERALLY
16	0000H	1	DSPEC. . . . . BYTE EXTERNAL(7)
4			DWRD . . . . . LITERALLY
2			ELSEDO . . . . . LITERALLY 39
2			ENDCASE. . . . . LITERALLY
2			ENDDO. . . . . LITERALLY
2			ENDFOREVER . . . . LITERALLY
2			ENDIF. . . . . LITERALLY 29 44 69
2			ENDMODULE. . . . . LITERALLY
2			ENDOFFILE. . . . . LITERALLY
2			ENDPROC. . . . . LITERALLY
2			ENDWHILE . . . . . LITERALLY
13	0000H		ERRMSG . . . . . PROCEDURE EXTERNAL(2) STACK=0000H
13	0000H	1	ERRNO. . . . . BYTE PARAMETER 14
2			FALSE. . . . . LITERALLY 31 48 55 57 62
18	0003H	1	FIRSTREG . . . . . BYTE 47 49
18	0002H	1	FIRSTTYPE. . . . . BYTE 47 49 56
2			FOREVER. . . . . LITERALLY
2			FORMFEED . . . . . LITERALLY
3			IDENT. . . . . LITERALLY
7			INDEXREGBIT. . . . LITERALLY 39
7			INDEXREGCOUNT. . . LITERALLY
18			INDEXREGI. . . . . LITERALLY 27 35
2			INIT . . . . . LITERALLY
7			IREGBIT. . . . . LITERALLY 37
7			IREGCOUNT. . . . . LITERALLY

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 3                LAB. . . . . .   LITERALLY
18  0005H     1  LASTREG. . . . .  BYTE        54  58
18  0004H     1  LASTTYPE . . . .  BYTE        54  56  58
 6                LEFTBRACKET. . .  LITERALLY
16  0000H     2  LENGTH . . . . .  WORD MEMBER(OPERANDS)
10  0000H     2  LENGTH . . . . .  WORD MEMBER(OPER)
 2                LF . . . . . .   LITERALLY
 2                LIT. . . . . .   LITERALLY        2   3   4   5   6   7  18
                  NEGLECTED. . . .  LITERALLY
16  0000H     1  NEXTCH . . . . .  BYTE EXTERNAL(10)
 4                NIL. . . . . .   LITERALLY
16  0000H     1  NOOPER . . . . .  BYTE EXTERNAL(13)
 7                NOOVERCOUNT. . .  LITERALLY
 7                NOOVERRIDEBIT. .  LITERALLY       68
 3                NUMBER . . . . .  LITERALLY       66
 6                OAND . . . . . .  LITERALLY
 6                OEQ. . . . . .   LITERALLY
16  0006H     2  OFFSET . . . . .  WORD MEMBER(OPERANDS)
18  0006H     2  OFFSET . . . . .  WORD MEMBER(OPER)
 6                OGE. . . . . .   LITERALLY
 6                OGT. . . . . .   LITERALLY
 6                OLAST. . . . . .  LITERALLY
 6                OLE. . . . . .   LITERALLY
 6                OLENGTH. . . . .  LITERALLY
 6                OLT. . . . . .   LITERALLY
 6                OMOD . . . . . .  LITERALLY
 6                ONE. . . . . .   LITERALLY
 6                ONOT . . . . . .  LITERALLY
 6                OOFFSET. . . . .  LITERALLY
 6                OOR. . . . . .   LITERALLY
18  0000H     9  OPER . . . . . .  STRUCTURE BASED(PT)      37  39  42  44  64  66  68  71
16  0000H    33  OPERANDS . . . . .  STRUCTURE ARRAY(4) EXTERNAL(14)
 7                OPERANDSTRUC . . .  LITERALLY       16  18
 3                OPERATOR . . . . .  LITERALLY
 6                OPTR . . . . . .  LITERALLY
 6                OSEG . . . . . .  LITERALLY
 6                OSHL . . . . . .  LITERALLY
 6                OSHORT . . . . . .  LITERALLY
 6                OSHR . . . . . .  LITERALLY
 6                OTYPE. . . . . .  LITERALLY
 6                OXOR . . . . . .  LITERALLY
 2                PROC . . . . . .  LITERALLY       8  10  13  17  19  33
 3                PSEUDO . . . . . .  LITERALLY
17  0000H     2  PT . . . . . .   WORD PARAMETER       18  37  39  42  44  64  66  68  71
19  0006H     2  PT1. . . . . .   WORD PARAMETER AUTOMATIC      20  23  27
33  0006H     2  PT1. . . . . .   WORD PARAMETER AUTOMATIC      34  35
33  0004H     2  PT2. . . . . .   WORD PARAMETER AUTOMATIC      34  38  43
17  0004H     2  PT2. . . . . .   WORD PARAMETER AUTOMATIC      20  24  25  28
 5                RBP. . . . . .   LITERALLY       25  43
 5                RBX. . . . . .   LITERALLY       25
 5                RCS. . . . . .   LITERALLY
 5                RDI. . . . . .   LITERALLY       28  38
 5                RDS. . . . . .   LITERALLY
 2                REENT. . . . . .  LITERALLY
 3                REG. . . . . .   LITERALLY       21
20  0000H     1  REG1 . . . . . .  BYTE BASED(PT2)      24  25  28
34  0000H     1  REG1 . . . . . .  BYTE BASED(PT2)      38  43
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 19  0094H   73  REGTYP . . . . . .  PROCEDURE BYTE STACK=0006H          47  54
  5              RES. . . . . . . .  LITERALLY
  6              RIGHTBRACKET . . .  LITERALLY       61
  5              RSI. . . . . . . .  LITERALLY       28
  5              RSS. . . . . . . .  LITERALLY
  8  0000H       SCAN . . . . . . .  PROCEDURE EXTERNAL(0) STACK=0000H       50  53  59  63
  7              SEGMBIT. . . . . .  LITERALLY       64
  7              SEGMCOUNT. . . . .  LITERALLY
 18  0004H    2  SEGMENT. . . . . .  WORD MEMBER(OPER)
 16  0004H    2  SEGMENT. . . . . .  WORD MEMBER(OPERANDS)
  7              SEGTYPEBIT . . . .  LITERALLY
  7              SEGTYPECOUNT . . .  LITERALLY
 33  00DDH   65  SETOPERFLAGS . . .  PROCEDURE STACK=0006H          49  58
 18  0003H    1  SFLAG. . . . . . .  BYTE MEMBER(OPER)         37  42  64
 16  0003H    1  SFLAG  . . . . . .  BYTE MEMBER(OPERANDS)
  2              SPACE. . . . . . .  LITERALLY
  3              SPEC . . . . . . .  LITERALLY
 10  0000H       SPECIALTOKEN . . .  PROCEDURE BYTE EXTERNAL(1) STACK=0000H       51  61
  3              STRING . . . . . .  LITERALLY
  2              STRUC. . . . . . .  LITERALLY       16  18
 18  0002H    1  STYPE. . . . . . .  BYTE MEMBER(OPER)         66  71
 16  0002H    1  STYPE. . . . . . .  BYTE MEMBER(OPERANDS)
  3              SYMBOL . . . . . .  LITERALLY
  2              TAB. . . . . . . .  LITERALLY
  2              THENDO . . . . . .  LITERALLY       21  35  51  64  66
 10  0000H    1  TOK. . . . . . . .  BYTE PARAMETER       11
 16  0000H    4  TOKEN. . . . . . .  STRUCTURE EXTERNAL(9)          21  24
  2              TRUE . . . . . . .  LITERALLY       26  29  72
 34  0000H    1  TYP. . . . . . . .  BYTE BASED(PT1)      35
 20  0000H    1  TYP. . . . . . . .  BYTE BASED(PT1)      23  27
 16  0000H    1  TYPE . . . . . . .  BYTE MEMBER(TOKEN)        21
  7              TYPEBIT. . . . . .  LITERALLY
  7              TYPECOUNT. . . . .  LITERALLY
  3              UDEFSYMB . . . . .  LITERALLY
 16  0002H    2  VALUE. . . . . . .  WORD MEMBER(TOKEN)        24
  3              VARIABLE . . . . .  LITERALLY       71
  4              WRD. . . . . . . .  LITERALLY       21
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MODULE INFORMATION:

```
    CODE AREA SIZE     = 011EH    286D
    CONSTANT AREA SIZE = 0000H      0D
    VARIABLE AREA SIZE = 0006H      6D
    MAXIMUM STACK SIZE = 000AH     10D
    254 LINES READ
    0 PROGRAM ERROR(S)
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END OF PL/M-86 COMPILATION

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